

What Is Claimed Is:

1. A reflector for a light source comprising a structure having a first surface, the first surface having a first concave hole for collimating light formed therein, the concave hole being sufficiently large such that the light source is a point source relative to the concave hole.
2. The reflector of claim 1, wherein said concave hole is shaped at least in part as a parabola.
3. The reflector of claim 2, wherein said concave hole is a paraboloid.
4. The reflector of claim 1 further comprising a second concave hole for collimating light.
5. The reflector of claim 4 wherein each of the first and second concave holes have a central axis therethrough, and wherein the central axis of the first and second concave holes intersect.
6. The reflector of claim 5, wherein the reflector has third and fourth concave holes for collimating light and wherein each of the first through fourth concave holes have a central axis therethrough, and wherein the central axis of the first through fourth concave holes intersect.
7. The reflector of claim 6, wherein the first through fourth concave holes are each shaped at least in part as parabolas.
8. The reflector of claim 7, wherein the first through fourth concave holes are each shaped at least in part as paraboloids.
9. A lighting structure comprising:
 - a) a reflector having a first concave hole formed therein; and
 - b) a first light source in the first concave hole.

- c) a first filter positioned so that at least a portion of the light from the first light source passes therethrough.
10. The lighting structure of claim 9, wherein the first light source is a first light emitting diode.
 11. The lighting structure of claim 10, wherein the first concave hole is a first parabolic hole shaped at least in part as a parabola.
 12. The lighting structure of claim 11, wherein the first light emitting diode has a centroid and wherein the first parabolic hole has a first axis and a shape substantially in the form of $y = Ax^2$, the centroid being placed at a point along the axis from a bottom of the parabolic hole substantially at the distance of $1/4A$.
 13. The lighting structure of claim 11, further comprising:
 - a) a second parabolic hole formed in the reflector;
 - b) a second light emitting diode in the second parabolic hole; and
 - c) a second filter positioned so that at least a portion of the light from the second light emitting diode passes therethrough.
 14. The lighting structure of claim 13, wherein the first and second light emitting diodes each have a centroid and wherein the first and second parabolic holes have a first and second axis respectively, and a shape substantially in the form of $y = Ax^2$, the centroid each being placed respectively at a point along the first and second axis from a bottom of the first and second parabolic holes substantially at the distance of $1/4A$.
 15. The lighting structure of claim 14, wherein the first and second axes substantially intersect.

16. The lighting structure of claim 11 wherein the reflector has a mounting region for the filter, the filter being associated with the mounting region.
17. The lighting structure of claim 16 wherein, wherein the first light emitting diode has a centroid and wherein the first parabolic hole has a first axis and a shape substantially in the form of $y = Ax^2$, the centroid being placed at a point along the axis from a bottom of the parabolic hole substantially at the distance of $1/4A$.
18. The lighting structure of claim 13 wherein the reflector has a first mounting region for the first filter and a second mounting region for the second filter.
19. The lighting structure of claim 18, wherein the first and second light emitting diodes each have a centroid and wherein the first and second parabolic holes have a first and second axis respectively and a shape substantially in the form of $y = Ax^2$, the centroid each being placed respectively at a point along the first and second axis from a bottom of the first and second parabolic holes substantially at the distance of $1/4A$.
20. An illumination system, comprising:
 - a) a reflector having a first surface at least in part in the shape of a parabola, the parabola having a first axis therethrough;
 - b) a first light source located substantially at the focal point of the parabola;
 - c) an optical filter arranged with respect to the light source such that at least a portion of the light from the light source passes therethrough.
21. The illumination system of claim 20, wherein the optical filter has a major surface arranged normal to the axis.
22. The illumination system of claim 20, further comprising:

- a) a second surface at least in part in the shape of parabola, the parabola having a second axis therethrough;
 - b) a second light source in the second surface; and
 - c) a second filter positioned so that at least a portion of the light from the second light source passes therethrough.
23. The illumination system of claim 22, wherein the first and second light sources each have a centroid and wherein the parabolic portions of the first and second surfaces have a first and second axis respectively, and a shape substantially in the form of $y = Ax^2$, the centroid each being placed respectively at a point along the first and second axis from a base of the first and second parabolic portions of the first and second surfaces substantially at the distance of $1/4A$.
24. The illumination system of claim 22, wherein the first and second axes substantially intersect.
25. The illumination system of claim 24 wherein the first and second surfaces have first and second mounting regions, respectively, for the first and second filters, the first and second filters being associated with the first and second mounting regions.
26. The illumination system of claim 23, wherein the first and second light emitting diodes each have a centroid and wherein the first and second parabolic holes have a first and second axis respectively and a shape substantially in the form of $y = Ax^2$, the centroid each being placed respectively at a point along the first and second axis from a bottom of the first and second parabolic holes substantially at the distance of $1/4A$.
27. The illumination system of claim 20, further comprising a lens arranged such that a least a portion of the light passing through the optical filter passes through the lens.

28. The illumination system of claim 20, further comprising a mounting surface normal to the central axis, the optical filter being associated with the mounting surface.
29. An illumination system, comprising:
 - a) a plurality of light emitting diodes;
 - b) a reflector for each light emitting diode, the reflector adapted to receive light from the light emitting diode therein and shaped to direct the light, the reflectors each having an axis, the axes arranged to intersect at a common point.
30. The illumination system of claim 29, wherein the reflectors include a reflective surface shaped as a paraboloid.
31. The illumination system of claim 30, wherein the light emitting diodes are located at the focal points of the paraboloids.
32. The illumination system of claim 31, wherein the reflectors include a surface normal to the axes.
33. The illumination system of claim 32, further comprising an optical filter for each reflector arranged such that at least a portion of the light from the light emitting diode passes therethrough.
34. The illumination system of claim 33, further comprising a lens for each reflector arranged such that at least a portion of the light passing through the optical filter passes through the lens.
35. The illumination system of claim 29, wherein the reflector directs the light by collimating the light.
36. A light based measurement system comprising:

- a) a light source including a first light emitting diode and a reflector, the reflector having a substantially parabolic hole formed therein, the first light emitting diode being located in the first parabolic hole, the light source producing light at a plurality of wavelengths within a desired wavelength range;
 - b) a light sensor for receiving light signals from the light source; and
 - c) a processor for determining a spectral response based upon received light signals.
37. The light based measurement system of claim 36, wherein the light source and the light sensor are located in a shared package.